

containing 1  
 fragments assigned reactant/reagent role:  
 containing 6  
 containing 13

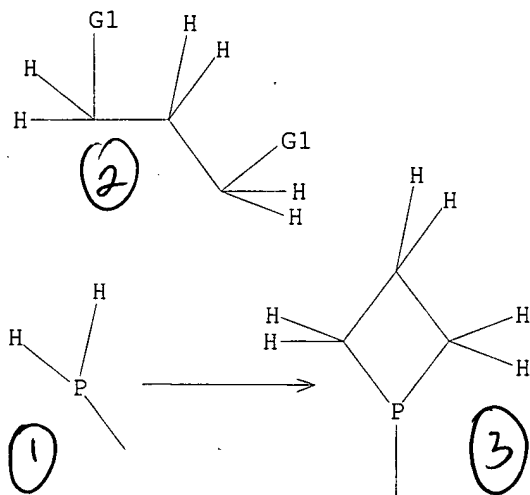
L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR

Conversion of (1) (2) → (3)



G1 X,O

Structure attributes must be viewed using STN Express query preparation.

=> s 11

SAMPLE SEARCH INITIATED 09:46:46 FILE 'CASREACT'

SCREENING COMPLETE - 863 REACTIONS TO VERIFY FROM

92 DOCUMENTS

100.0% DONE 863 VERIFIED 0 HIT RXNS

0 DOCS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*

BATCH \*\*COMPLETE\*\*

PROJECTED VERIFICATIONS: 15499 TO 19021

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1 ( 0 REACTIONS)

=> s 11 full ✓

FULL SEARCH INITIATED 09:46:52 FILE 'CASREACT'

SCREENING COMPLETE 11966 REACTIONS TO VERIFY FROM

1830 DOCUMENTS

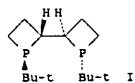
100.0% DONE ✓ 11966 VERIFIED

10 HIT RXNS

SEARCH TIME: 00.00.04

7 DOCS ✓

L3 ANSWER 1 OF 7 CASREACT COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 141:174232 CASREACT  
 TITLE: *Inventor's*  
 Optically-active 1,1'-di-tert-butyl-2,2'-  
 diphosphatanyl and its application in  
 rhodium-catalyzed asymmetric hydrogenations  
 Imamoto, Tsuneo; Oohara, Nobuhiko; Takahashi,  
 Hidetoshi  
 CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba  
 University, Chiba, 265-8522, Japan  
 SOURCE: Synthesis (2004), (9), 1353-1358  
 CODEN: SYNTBP; ISSN: 0039-7881  
 PUBLISHER: Georg Thieme Verlag  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI

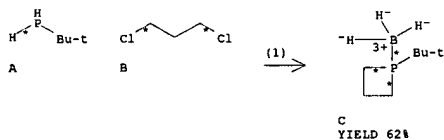


AB (1S,1'S,2R,2'R)-1,1'-Di-tert-butyl-2,2'-diphosphatanyl (I) was prepared from tert-butylphosphine via phosphine-boranes as intermediates. The rhodium complex of the ligand was used as a highly efficient catalyst in asym. hydrogenations of  $\alpha$ -acetyl-aminoacrylates and  $\alpha$ -substituted enamides.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

RX(1) OF 32 A + B ==> C...



RX(1) RCT A 2501-94-2, B 142-28-9

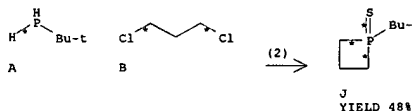
L3 ANSWER 1 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)  
 STAGE(1)  
 RGT D 109-72-8 BuLi  
 SOL 109-99-9 THF, 110-54-3 Hexane  
 CON SUBSTAGE(1) 3 hours, -78 deg C  
 SUBSTAGE(2) 5 hours, -78 deg C -> 0 deg C

STAGE(2)  
 RGT E 14044-65-6 BH3-THF  
 SOL 109-99-9 THF  
 CON 1 hour, 0 deg C

STAGE(3)  
 RGT F 7647-01-0 HCl  
 SOL 7732-18-5 Water  
 CON room temperature

PRO C 735288-28-5

RX(2) OF 32 A + B ==> J...



RX(2) RCT A 2501-94-2, B 142-28-9

STAGE(1)  
 RGT D 109-72-8 BuLi  
 SOL 110-54-3 Hexane, 109-99-9 THF  
 CON SUBSTAGE(1) 1 hour, -78 deg C  
 SUBSTAGE(2) 1 hour, -78 deg C -> 0 deg C

STAGE(2)  
 RGT K 7704-34-9 S  
 CON SUBSTAGE(1) 0 deg C -> room temperature  
 SUBSTAGE(2) 2 hours, room temperature

STAGE(3)  
 SOL 7732-18-5 Water

PRO J 735288-38-7

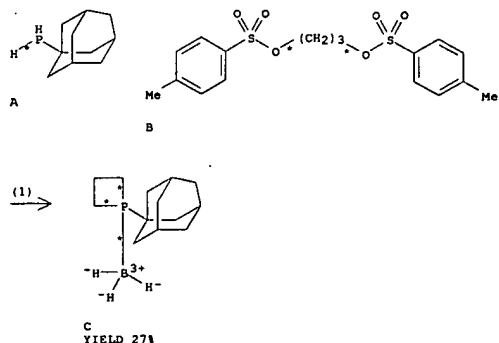
L3 ANSWER 2 OF 7 CASREACT COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 132:222580 CASREACT  
 TITLE: *Inventor's*  
 Improved synthesis of 1-adamantylphosphine and its  
 use in the synthesis of cyclic phosphines containing  
 1-adamantyl group  
 Ohashi, Atsushi; Matsukawa, Satoru; Imamoto, Tsuneo  
 CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba  
 University, Chiba, 263-8522, Japan  
 SOURCE: Heterocycles (2000), 52(2), 905-910  
 CODEN: HETCYM; ISSN: 0385-5414  
 PUBLISHER: Japan Institute of Heterocyclic Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB 1-Adamantylphosphine (1) was easily synthesized by treating 1-adamantylmagnesium bromide with  $PCl_3$ , followed by reduction with  $LiAlH_4$ . Several new cyclic trialkylphosphines bearing a 1-adamantyl group were prepared from compound 1. Thus, treating 1 with BuLi and  $TsOCH_2(CH_2)_nCH_2OTs$  ( $n = 1, 2$ ), followed by BuLi and  $BH_3-THF$  gave 27-39% of the corresponding 1-adamantyl-substituted phosphatane-borane or phospholane-borane, resp. Optically active di-Me derivs. were prepared in a similar fashion from the cyclic sulfates of (S,S)-2,4-pentanediol or -2,5-hexanediol. The structures of.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

RX(1) OF 14 ...A + B ==> C



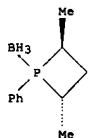
L3 ANSWER 2 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)  
 RX(1) RCT A 23906-89-0, B 5469-66-9

STAGE(1)  
 RGT D 109-72-8 BuLi  
 SOL 109-99-9 THF

STAGE(2)  
 RGT D 109-72-8 BuLi, E 14044-65-6  $BH_3-THF$   
 SOL 109-99-9 THF

PRO C 261618-83-1

L3 ANSWER 3 OF 7 CASREACT COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 127:34290 CASREACT  
 TITLE: Synthesis of chiral phosphatanes  
 AUTHOR(S): Marinetti, Angela; Kruger, Virginia; Buzin, Francois-Xavier  
 CORPORATE SOURCE: Laboratoire Heteroelements et Coordination, associe au  
 CNRS, DCPH, Ecole Polytechnique, Palaiseau, 91128,  
 Fr.  
 SOURCE: Tetrahedron Letters (1997), 38(17), 2947-2950  
 CODEN: TELEAY; ISSN: 0040-4039  
 PUBLISHER: Elsevier  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI

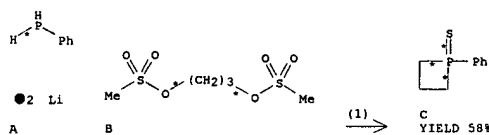


I

AB Reactions of Li phosphides with the mesylate or the cyclic sulfate of (R,R)-2,4-pentanediol afford a general access to new chiral ligands based on the phosphatane moiety. Among others, the four membered ring analog of Me-DuPHOS was obtained by this method. E.g., reaction of PhPLi2 with (R,R)-2,4-pentanediol dimesylate in THF followed by BH3-SMe2 gave 2,4-dimethyl-1-phenylphosphatane-borane complex I in 68% yield; subsequent reduction of I with DABCO removed BH3 group quant.  
 REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

RX(1) OF 11 A + B ==> C

L3 ANSWER 3 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



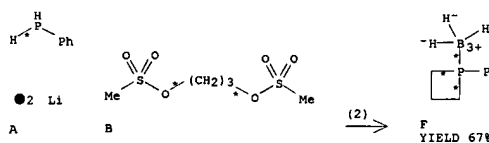
RX(1) RCT A 13595-56-7, B 15886-84-7

STAGE(1)  
 SOL 109-99-9 THF

STAGE(2)  
 RGT D 10544-50-0 S8

PRO C 190671-70-6

RX(2) OF 11 A + B ==> F



RX(2) RCT A 13595-56-7, B 15886-84-7

STAGE(1)  
 SOL 109-99-9 THF

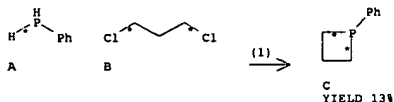
STAGE(2)  
 RGT G 13292-87-0 BH3-Me2S

PRO F 190671-71-7

L3 ANSWER 4 OF 7 CASREACT COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 124:176303 CASREACT  
 TITLE: Direct Syntheses of 1-Phenylphosphetane and 1-Phenylphosphirane. Crystal and Molecular Structures of Neutral and Cationic Cyclotrimerization Precursor Complexes  
 AUTHOR(S): Hockless, David C. R.; Kang, Yew Beng; McDonald, Mark A.; Fabel, Michael; Willis, Anthony C.; Wild, S.  
 Bruce  
 CORPORATE SOURCE: Research School of Chemistry, Australian National University, Canberra, 0200, Australia  
 SOURCE: Organometallics (1996), 15(4), 1301-6  
 CODEN: ORGN7; ISSN: 0276-7333  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Dilithium phenylphosphide reacts with 1,3-dichloropropane or 1,2-dichloroethane to give 1-phenylphosphetane (1) or 1-phenylphosphirane (2), resp., both of which can be isolated by distillation in vacuo. The phosphetane rapidly polymerizes when neat but is stable in benzene wherefrom the polymer can be selectively and quant. separated from 1 by the addition of trans-dichlorobis(di-Et sulfide)palladium(II).  
 Four-membered 1 has a remarkably low-field 31P NMR chemical shift (13.9 ppm) and 2, a remarkably high-field shift (-236 ppm). The crystal and mol. structures of the potential cyclotrimerization precursor complexes fac-[Mo(CO)3(1)3] (7), fac-[Mo(CO)3(2)3] (8), and [(η5-C5H5)Fe(2)3]PF6 (9) were determined. Both Mo complexes have C3 symmetry in the solid state, and the Fe complex has C1 symmetry. An interesting feature of the three structures is that the Ph groups of the small P heterocycles in each case are arranged in groups of three syn or anti to the auxiliary ligands.

RX(1) OF 2 A + B ==> C



RX(1) RCT A 638-21-1

STAGE(1)  
 RGT D 109-72-8 BuLi  
 SOL 109-99-9 THF

STAGE(2)  
 RCT B 142-28-9  
 SOL 109-99-9 THF

PRO C 142599-70-0

L3 ANSWER 4 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

L3 ANSWER 5 OF 7 CASREACT COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 122:214216 CASREACT  
 TITLE: Reactions of Coordinated Phosphines and Arsenic.  
 Iron(II)-Facilitated and Direct Syntheses of Three-

to

AUTHOR(S):

CORPORATE SOURCE:

SOURCE:

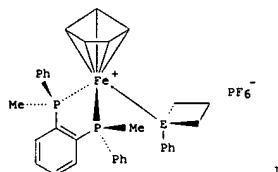
PUBLISHER:

DOCUMENT TYPE:

LANGUAGE:

GI

Seven-Membered Heterocycles Containing Phosphorus and Arsenic. Crystal Structures of Iron(II) Complexes of 1-Phenylphosphetane and 1-Phenylarsetane  
 Bader, Armin; Kang, Yew Beng; Pabel, Michael; Pathak, Devendra D.; Willis, Anthony C.; Wild, S. Bruce  
 Research School of Chemistry, Australian National University, Canberra, 0200, Australia  
 Organometallics (1995), 14(3), 1434-41  
 CODEN: ORGN7; ISSN: 0276-7333  
 American Chemical Society  
 Journal  
 English



AB The complexes  $(R^*, R^*)-(\pm)-[(\eta^5-C_5H_5)(1,2-C_6H_4(PMePh)_2)FeL]PF_6$ , where  $L = 1$ -phenylphosphetane, -phospholane, -phosphorinane, and -phosphepane, have been prepared in high yield from the corresponding phenylphosphine complex by treatment with the appropriate  $\alpha, \omega$ -dibromoalkanes and potassium tert-butoxide. The 1-phenylarsetane complex was obtained by deprotonation of the corresponding complex of  $(\pm)-(3$ -chloropropyl)phenylarsine. The 1-phenylphosphirane, the 1-phenylphosphetane, and the 1-phenylarsetane complexes were also prepared by direct reactions of the free ligands with  $(R^*, R^*)-(\pm)-[(\eta^5-C_5H_5)(1,2-C_6H_4(PMePh)_2)FeMeCN]PF_6$ . The mol. structures of phosphetane complex I ( $E = P$ ) and arsetane complex I ( $E = As$ ) were determined by x-ray crystallog. The phosphetane complex crystallized in a solvated form with two independent cations of slightly different geometries in each unit cell; the four-membered phosphetane rings are puckered with the angles between the C-P-C and C-C-C planes being  $18(2)$  and  $24(2)^\circ$  for the resp. cations. The four-membered ring of the arsetane complex is also puckered with the corresponding angle being  $25(1)^\circ$ .

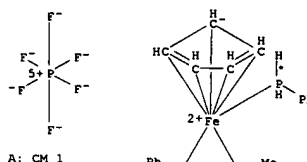
L3 ANSWER 5 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

RGT D 865-47-4 t-BuOK  
 PRO C 142575-78-8  
 SOL 109-99-9 THF  
 NTE STEREOSELECTIVE

L3 ANSWER 5 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

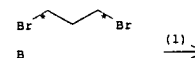
RX(1) OF 11

A + B ==&gt; C

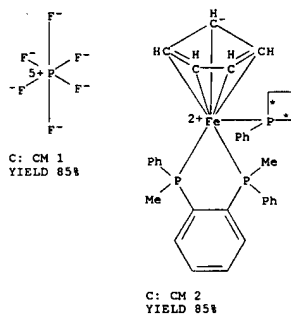


A: CM 1

A: CM 2



(1)

C: CM 1  
YIELD 85%C: CM 2  
YIELD 85%

RX(1) RCT A 113587-95-4, B 109-64-8

L3 ANSWER 6 OF 7 CASREACT COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 121:35698 CASREACT  
 TITLE: Direct syntheses of 1-phenylphosphetane and 1-phenylphosphirane. Crystal and molecular structures of cyclotrimerization precursor complexes  $fac-[Mo(CO)_3(PhPCH_2CH_2CH_2)_3]$  and  $fac-[Mo(CO)_3(PhPCH_2CH_2)_3]$

AUTHOR(S):

CORPORATE SOURCE:

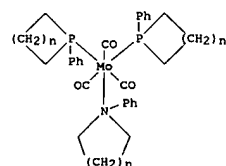
SOURCE:

DOCUMENT TYPE:

LANGUAGE:

GI

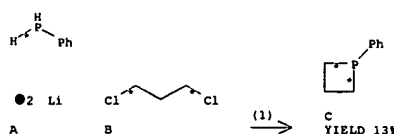
Kang, Yew Beng; Pabel, Michael; Willis, Anthony C.; Wild, S. Bruce  
 Res. Sch. Chem., Aust. Natl. Univ., Canberra, 0200, Australia  
 Journal of the Chemical Society, Chemical Communications (1994), (4), 475-6  
 CODEN: JOCCAT; ISSN: 0022-4936  
 Journal  
 English



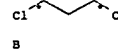
I

AB Dilithium phenylphosphide reacts with 1,3-dichloropropane or 1,2-dichloroethane to give 1-phenylphosphetane or 1-phenylphosphirane, resp.: the free phosphines have been used to prepare the cyclotrimerization precursor complexes  $fac-[Mo(CO)_3(PhPCH_2CH_2CH_2)_3]$  and  $fac-[Mo(CO)_3(PhPCH_2CH_2)_3]$  ( $I$ ,  $n = 0$  or  $1$ , resp.).

RX(1) OF 6 A + B ==&gt; C...



A



B

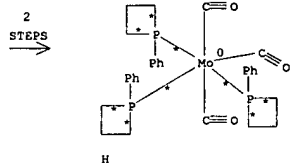
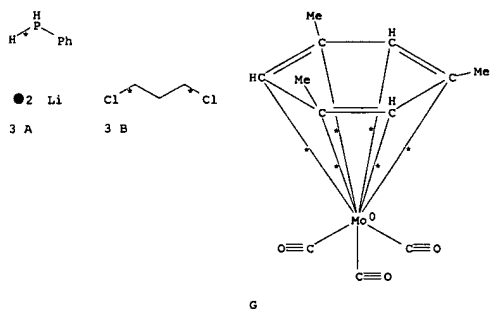
C  
YIELD 13%

RX(1) RCT A 13595-56-7, B 142-28-9

L3 ANSWER 6 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)  
 PRO C 142599-70-0  
 SOL 109-99-9 THF  
 NTE polymer also formed

L3 ANSWER 6 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)  
 RX(3) RCT C 142599-70-0, G 12089-15-5  
 PRO H 155917-67-2  
 SOL 71-43-2 Benzene

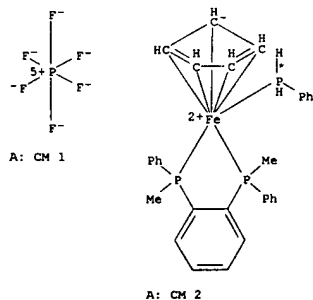
RX(5) OF 6 COMPOSED OF RX(1), RX(3)  
 RX(5) 3 A + 3 B + G ==> H



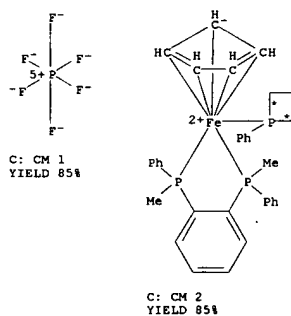
RX(1) RCT A 13595-56-7, B 142-28-9  
 PRO C 142599-70-0  
 SOL 109-99-9 THF  
 NTE polymer also formed

L3 ANSWER 7 OF 7 CASREACT COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 117:69992 CASREACT  
 TITLE: Reactions of coordinated phosphines and arsines.  
 Iron(II)-facilitated synthesis of 1-phenylphosphetane  
 and 1-phenylarsetane  
 AUTHOR(S): Bader, Armin; Pathak, Devendra D.; Wild, S. Bruce;  
 Willis, Anthony C.  
 CORPORATE SOURCE: Res. Sch. Chem., Aust. Natl. Univ., Canberra, 2601,  
 Australia  
 SOURCE: Journal of the Chemical Society, Dalton Transactions:  
 Inorganic Chemistry (1972-1999) (1992), (10), 1751-2  
 CODEN: JCDTBI; ISSN: 0300-9246  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Phenylphosphine in the complex (R\*,R\*)-(z)-[Fe(η-C5H5)(C6H4(PMePh)2-  
 1,2)(PH2Ph)]PF6 was treated with 1,3-dibromopropane in the presence of  
 KOtBu to give 1-phenylphosphetane; similarly, (z)-(3-  
 chloropropyl)phenylarsine was converted into 1-phenylarsetane.

RX(1) OF 2 A + B ==> C



L3 ANSWER 7 OF 7 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



RX(1) RCT A 113587-95-4, B 109-64-8  
 RGT D 6674-22-2 DBU  
 PRO C 142575-78-8  
 SOL 109-99-9 THF